

**UNITED STATES DISTRICT COURT  
SOUTHERN DISTRICT OF TEXAS  
HOUSTON DIVISION**

In re BP plc Securities Litigation

MDL No. 10-md-2185

Civil Action No. 4:10-md-2185

Honorable Keith P. Ellison

**NOTICE OF RECENT AUTHORITY**

Plaintiffs hereby notify the Court of facts released on July 24, 2012 by the U.S Chemical Safety and Hazard Investigation Board (“CSB”) in connection with the CSB’s ongoing investigation of the *Deepwater Horizon* explosion in the Gulf of Mexico. As an independent federal agency charged with investigating industrial chemical accidents, the CSB released its preliminary report during a public presentation (the “Presentation”) and concurrently issued a News Release memorializing the preliminary report (copies of the Presentation and News Release are attached as Exhibit A and Exhibit B, respectively).<sup>1</sup>

The following excerpts of the Presentation and News Release support the SAC’s allegations that Defendants’ statements regarding BP’s OMS were materially and knowingly false and misleading when made.

**OMS Applies to All Operations**

- **Hazard Assessment: Bridging Documents.** “BP . . . hazard assessment systems were inadequate. For example, the bridging document that sought to harmonize safety controls between BP and Transocean was a minimal document that focused only on six personal safety issues such as minimum heights for employing fall protection equipment. The

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<sup>1</sup> The Presentation and News Release contain information that supports the totality of Plaintiffs’ Second Amended Complaint (“SAC”). However, because the motions to dismiss the SAC relate primarily to the timing and scope of BP’s Operation Management System (“OMS”), this Notice of Recent Authority only focuses on those alleged material misstatements and omissions. See SAC Appendix A Summary of Misrepresentations at Dkt. #346 (Statements are classified as falling under one or more of the following categories (i) “Baker Report Progress,” (ii) “OMS Applies to All Operations,” (iii) “OMS Complete in GOM,” (iv) “Ability to Respond to Oil Spill,” and (v) “Oil Spill Flow Rates”).

document did not address major accident hazards like the potential for loss of well control.” Exhibit B at 3; *see also* Exhibit A at 16.

- BP Major Accident Risk Evaluations. “BP did not conduct an effective comprehensive hazard evaluation of major accident risks for the activities of the DWH or the Macondo Well.” “Major Accident Risk Assessment for Gulf of Mexico only examined its own facilities, not the ones it leased.” “BP’s use of Risk Ranking Matrices in the well planning process primarily focused on financial risk (cost and schedule).” Exhibit A at 29.

#### OMS Complete in GOM

- BP’s Safety Management System Program. “OMS, which contained process safety elements, was only partially implemented in the GoM Drilling and Completions (D&C) organization at the time of the April 20, 2010 incident.” “A high level BP manager stated to the CSB: ‘we were just getting started’ (with implementing OMS).” Exhibit A at 26.
- BP’s Focus on Personal Safety. “BP drilling and well completions managers and engineers stated that BP’s safety focus in audits, reviews and safety score cards primarily addressed personal safety issues.” “The offshore BP staff interviewed were generally unfamiliar with process safety management concepts or the need to have a specific focus on major accident prevention.” Exhibit A at 27. “Industry benchmarking by BP focused on production performance without significant focus on major accident metrics.” Exhibit A at 28. “Personal safety was rewarded, overshadowing focus on major accident hazards.” Exhibit A at 31.

#### Baker Report Progress

- “Since the release of the CSB’s BP Texas City and Baker reports, progress has been made onshore to focus on process safety and the use of leading and lagging indicators.” However, BP had “not sufficiently learned nor effectively implemented these vital safety lessons from the two reports.” Exhibit A at 49.

DATED: August 14, 2012

Respectfully submitted,

/s/ Richard W. Mithoff

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## **EXHIBIT A**

U.S. Chemical Safety and Hazard Investigation Board



**July 2012 Public Hearing**

# **Offshore Safety Performance Indicators Preliminary Findings on the Macondo Incident**

**July 24, 2012**



U.S. Chemical Safety and  
Hazard Investigation Board



## Process Safety - Personal Safety: Two distinct safety disciplines

	Process Safety	Personal Safety
<b>Scope</b>	Complex technical and organizational systems	Individual injuries and fatalities
<b>Prevention</b>	Management systems: design, mechanical integrity, hazard evaluation, MOC	Procedures, training, PPE
<b>Risk</b>	Incidents with catastrophic potential	Slips, trip, falls, dropped objects, etc.
<b>Primary actors</b>	Senior executives, engineers, managers, operations personnel	Front line workers, supervisors
<b>Safety Indicators: Leading and Lagging Examples</b>	HC releases, inspection frequency, PSM action item closure, well kick response, # of kicks	Recordable injury rate, days away from work, timely refresher training, # of behavioral observations





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## Key Messages

1. BP and Transocean had multiple safety management system deficiencies that contributed to the Macondo incident
2. Pre-incident, the safety approaches and metrics used by the two companies and US trade associations did not adequately focus on major accident hazards



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## Key Messages

3. Systems used for measuring safety effectiveness focused on personal safety and infrequent lagging indicators
4. The US offshore regulator can achieve greater impact with major accident prevention through the development of a leading and lagging process safety indicator program



## Key Messages

5. Despite some significant progress with indicator implementation in the downstream oil industry, in the offshore sector BP, Transocean, industry associations, and the regulator did not effectively learn critical lessons of Texas City and other incidents



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## Key Messages

6. Companies and trade associations operating in other regulatory regimes outside the US have developed effective indicator programs, recognizing the value of leading indicators, and using those indicators to drive continuous improvement



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## Key Messages

7. Trade associations and many of the same companies that operate in the US are partnering with the regulators in other regimes in advancing these programs
8. Post-incident, companies and trade associations in the US are initiating efforts to advance the development of offshore major accident indicators



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## Other Major Areas of Investigative Inquiry

- BOP Technical and Risk Management Deficiencies
- Risk Management Approaches
- Human and Organizational Factors
- Safety Responsibilities of the Drilling Contractor
- Workforce Involvement
- Corporate Governance and Sustainability
- Regulatory Reform



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## **CSB Deepwater (“DWH”) Investigation – Unique Contribution**

- Independent scientific federal agency
- Lengthy organizational history investigating catastrophic chemical accidents, particularly in oil industry
- PSM and catastrophic accident prevention-unique technical disciplines
- Recommendation follow-up and advocacy





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## Incident Summary

- April 20th, 2010
- Macondo well #252 in the Gulf of Mexico
- Transocean rig contracted by BP
- 11 deaths
- 17 serious injuries
- ~5 mm barrels of oil spilled in Gulf







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# Incident Description

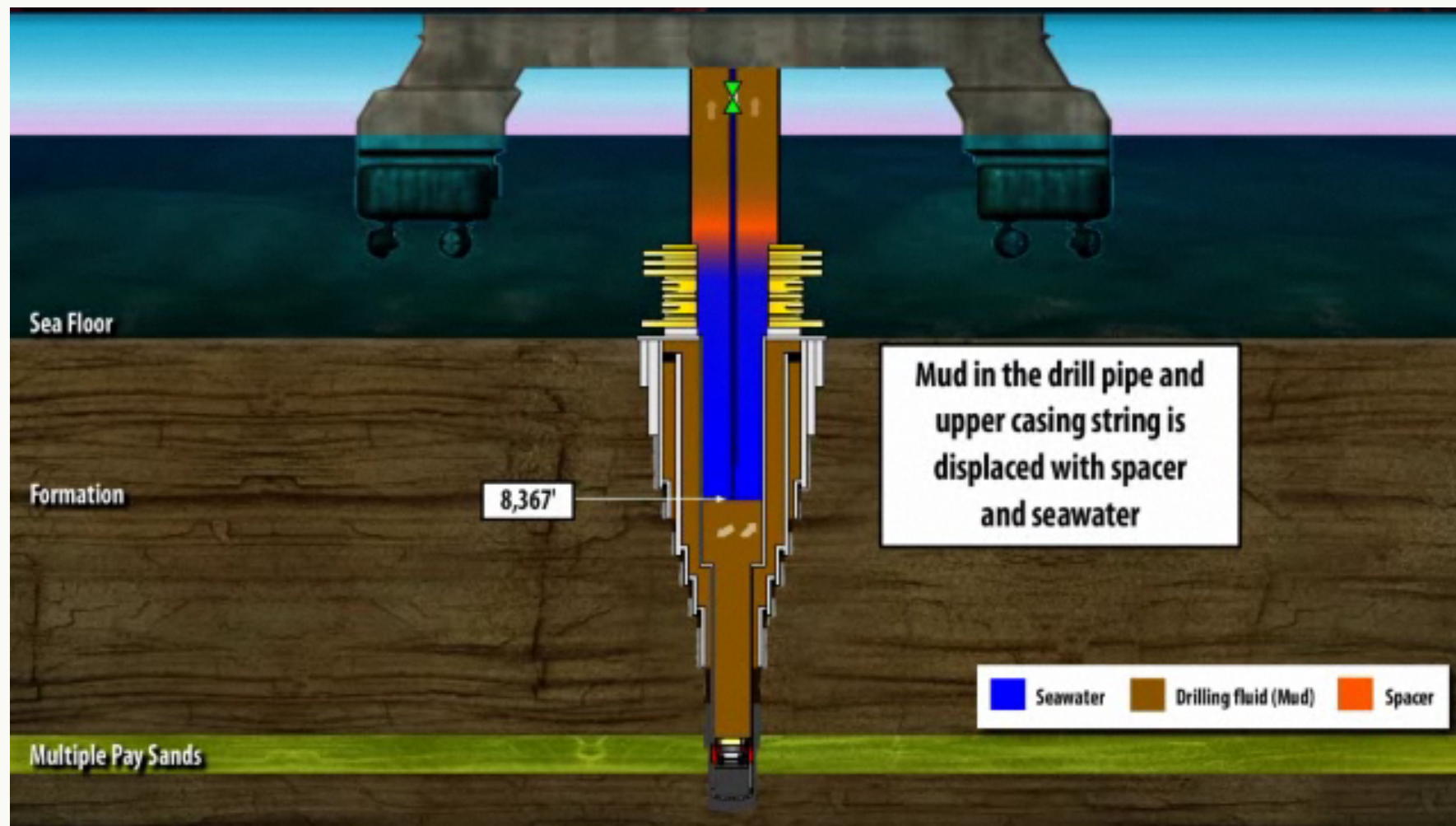


Image taken from Presidential Oil Spill Commission video: <http://www.oilspillcommission.gov/media/the-event/index.html>



## Incident Description

- Diversion system activated; system aligned by default to the mud-gas separator on the rig; no action to divert overboard
- Hydrocarbons released onto the rig in the vicinity of ignition sources
- Initial explosions and fire occur
- BOP fails to successfully seal the well
- Final consequences: 11 fatalities, sinking of DWH rig, and oil spill lasting 87 days

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# Safety Management System Deficiencies



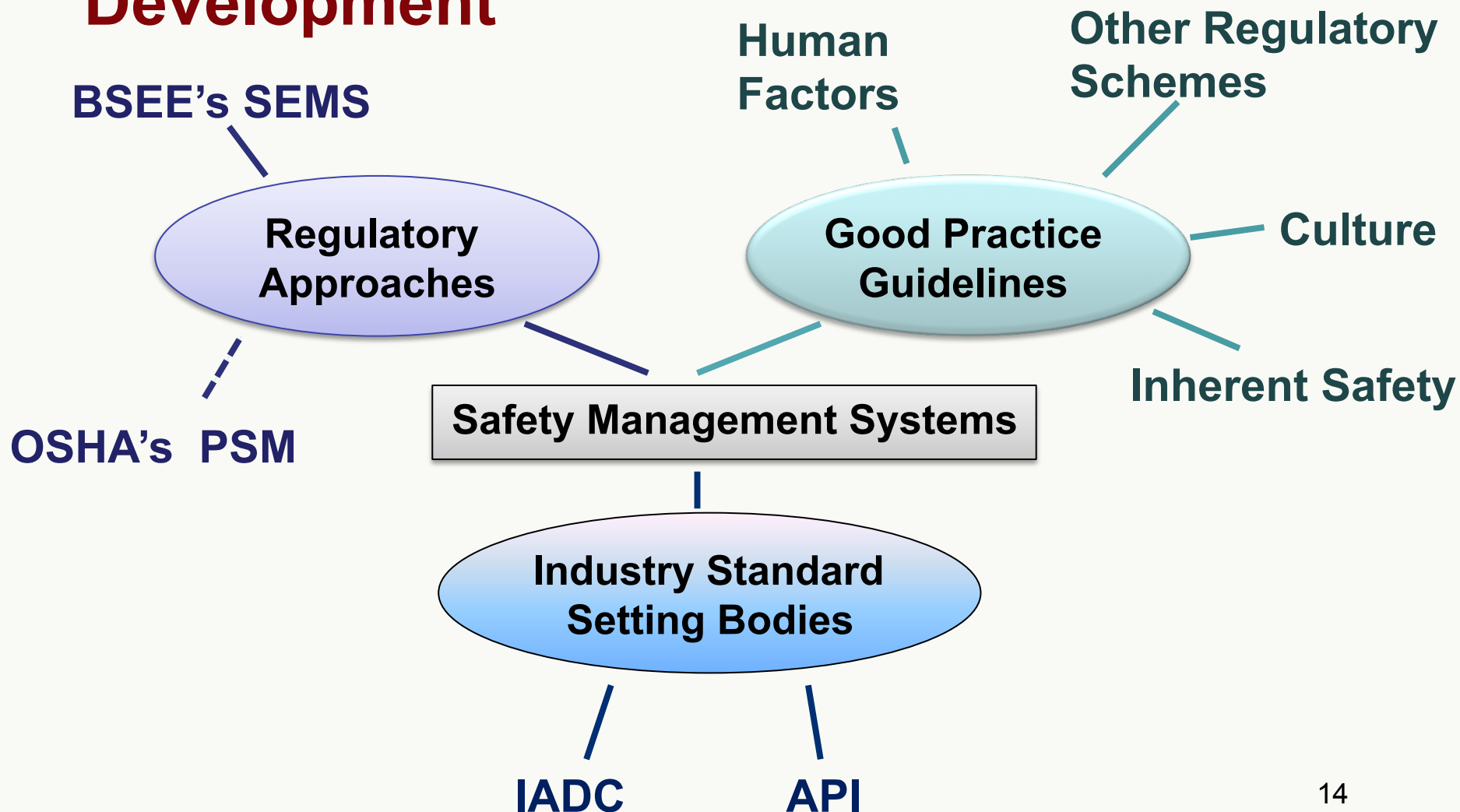




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# Safety Management System Development

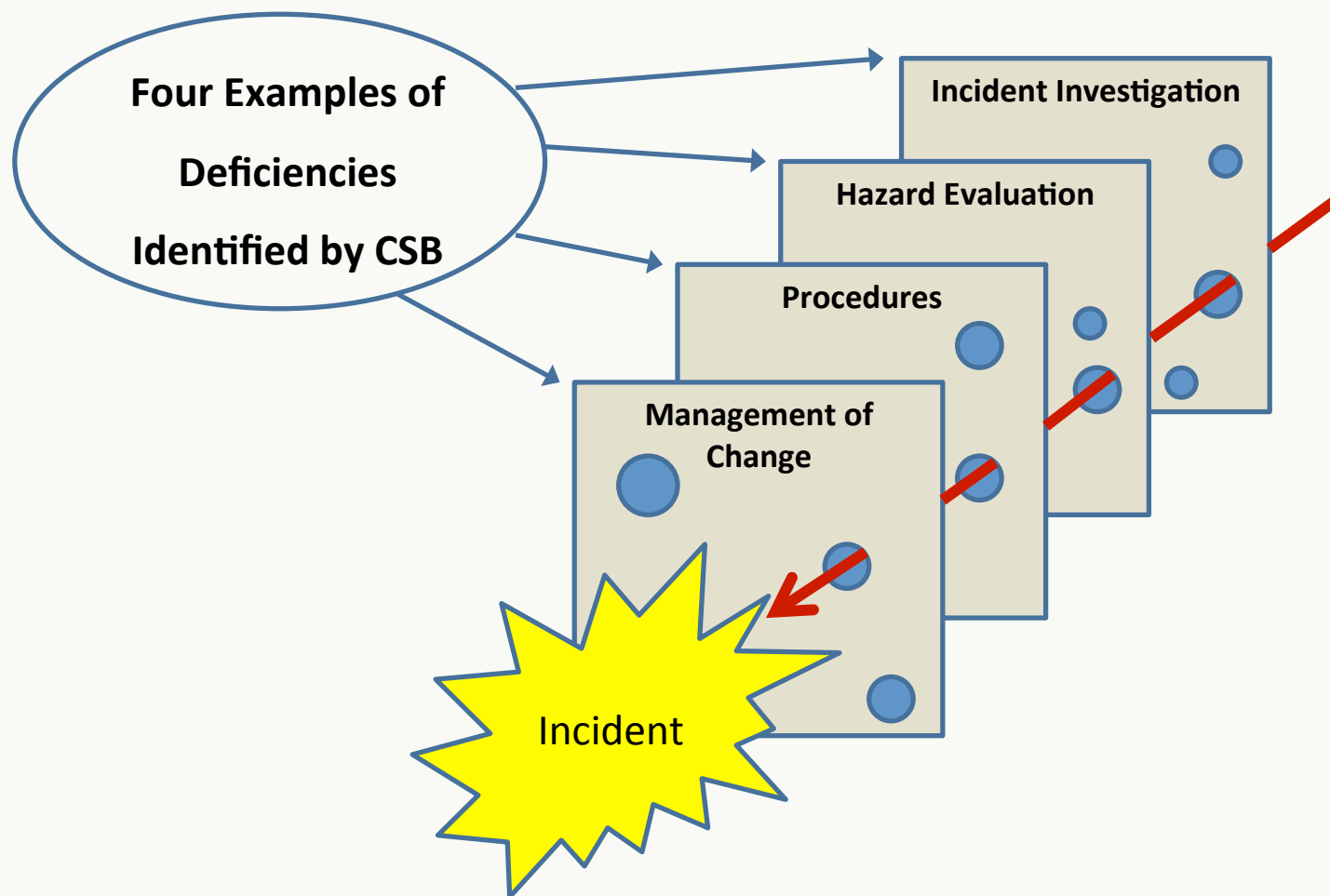




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# DWH Safety System Deficiencies





# **Safety System Deficiencies**

## **1. Hazard Assessment: Bridging Document**

- Bridging Document: meant to consolidate differences in safety management systems
- Contained just 6 personal safety issues
- Did not address major accident prevention, such as control methods specific to the Macondo well
- TO and BP did not define key process limits and controls required for the drilling project



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# Safety System Deficiencies

## 1. Hazard Assessment: Manual Intervention

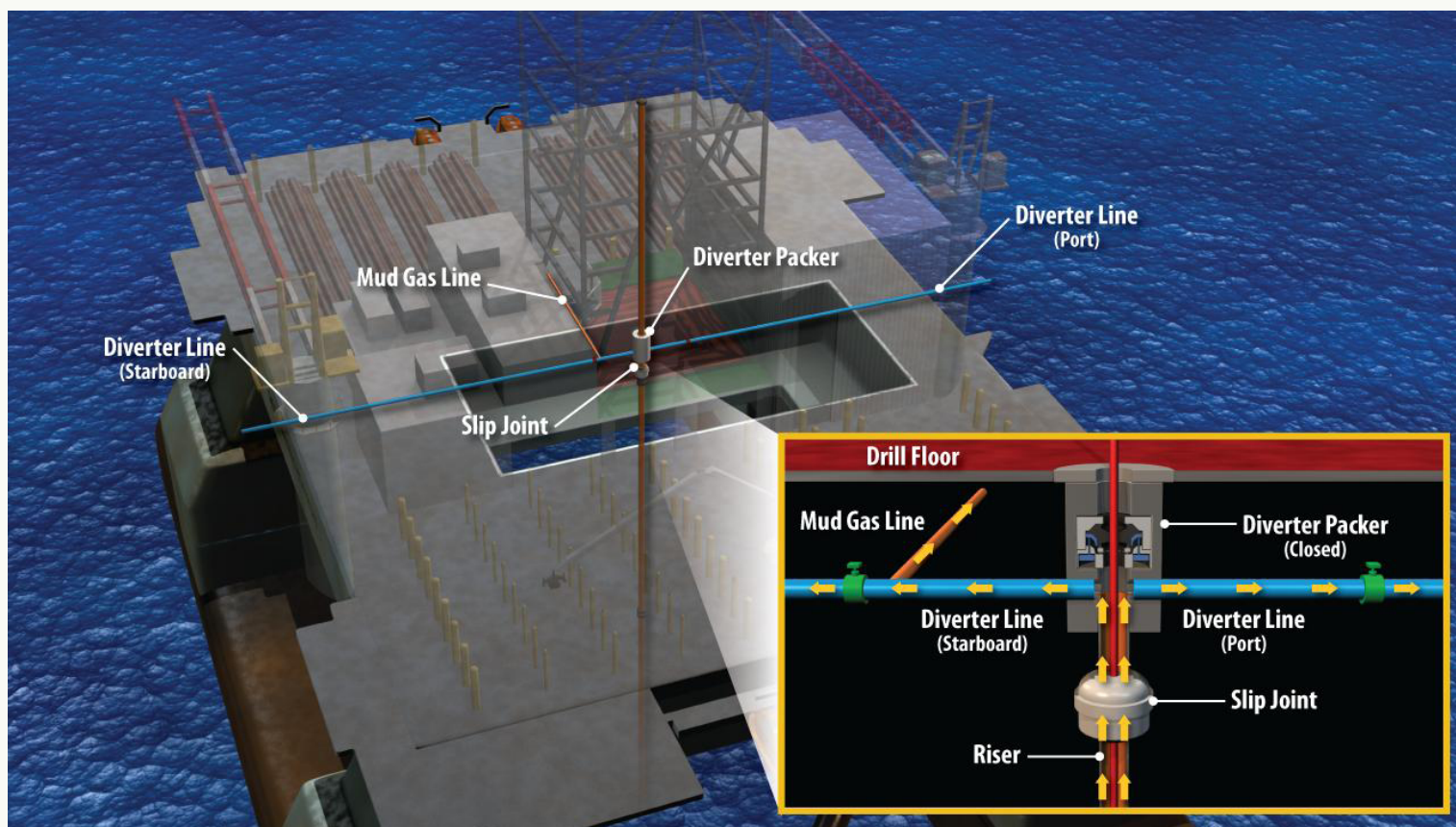


Illustration from the Presidential Oil Spill Commission



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## **Safety System Deficiencies**

### **2. Procedures: Negative Pressure Test**

- The Negative Pressure Test is vital verification of the integrity of the cement meant to seal the hydrocarbons at bottom of the well
- No written procedures
- No criteria for success or safe limits defined
- Confusion about how to proceed
- Test was executed multiple times in multiple ways
- Success incorrectly assumed, based on an unsubstantiated theory





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## **Safety System Deficiencies**

### **3. Management of Change (MOC): Temporary Abandonment**

- Temporary abandonment plan changed at least 5 times in a week without formal risk assessment
- Various options of the cement plan lacked formal risk identification
- The final cement job was not fully tested.
- The requirements for the Negative Pressure Test were not described



## Safety System Deficiencies

### 4. Incident Investigation: Sedco 711

- Occurred in North Sea a few months prior to Macondo
- Same drilling contractor; different operator
- Delayed response to kick indicators
- Mud and hydrocarbons reached the rig floor
- Unlike Macondo
  - There was no ignition and no loss of life
  - The BOP sealed the well; there was no spill
- Incident advisory by Transocean not shared with DWH rig crew or others outside the North Sea



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## **Safety System Deficiencies**

### **4. Incident Investigation: DWH March 8**

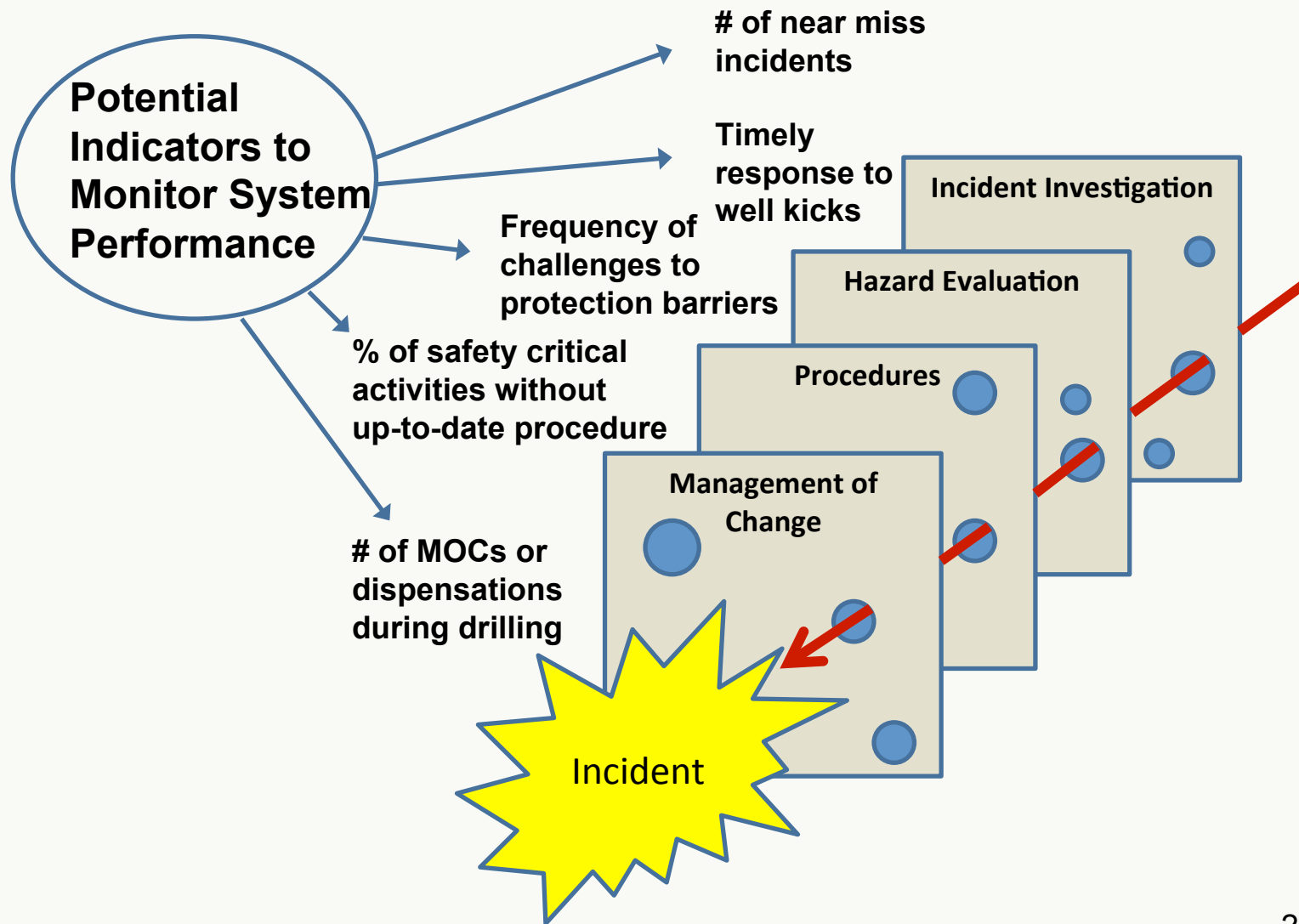
- March 8, 2010, a little over a month before Macondo
- Delay in response to kick indicators
- BP investigated the incident, but only from a geological perspective. The goal: Reduce lost drilling time.
- Discussions with Transocean were verbal and informal.
- However, evidence indicates that Transocean did not implement changes based on findings



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# Safety Indicators Monitor System Performance



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# Safety Approaches and Key Metrics Used by BP and Transocean





## **A Company's Approach to Safety is Defined by Where it Focuses Attention**

- Site and business unit goals given to its employees
- Personnel performance contracts with responsibilities to achieve those goals
- Reward structures that promote those goals
- Leadership's focus in meetings, company performance reports, and benchmarking activities
- Specific focus of hazard assessments, audits, and inspections



## **Personal Safety Metrics are not Sufficient to Measure Major Accident Risk**

- Days Away From Work (“DAFW”)
- Total Recordable Injury Rate (“TRIR”)
- DAFW and TRIR represent personal injuries – they are personnel safety metrics
- Typically capture the high frequency, low consequence events – slips, trips and falls
- Major accidents are rare and do not significantly contribute to personal safety metrics



## **BP's Safety Management System Program**

- OMS was BP's major safety initiative in the wake of Texas City, replacing the old system that focused largely on personal safety
- In 2007, BP made commitments to implement OMS in its exploration and production operations
- OMS, which contained process safety elements, was only partially implemented in the GoM Drilling and Completions (D&C) organization at the time of the April 20, 2010 incident
- A high level BP manager stated to the CSB: "we were just getting started" (with implementing OMS)





## BP's Focus on Personal Safety

- BP drilling and well completions managers and engineers stated that BP's safety focus in audits, reviews and safety score cards primarily addressed personal safety issues
- The offshore BP staff interviewed were generally unfamiliar with process safety management concepts or the need to have a specific focus on major accident prevention
- Witnesses stated that personnel contracts just prior to the incident focused on personal safety criteria and the implementation of OMS



## BP's Focus on Personal Safety

- In the week prior to the Macondo incident, the BP drilling completions executive leadership team meeting focused their review of safety trends on injury and fatality statistics as well as other personal safety statistics
- Industry benchmarking by BP focused on production performance without significant focus on major accident metrics
- Post-incident, BP's investigation report contained a number of recommendations for process safety improvement including: the establishment of leading and lagging indicators for well integrity, well control, and rig safety critical equipment



## **BP Major Accident Risk Evaluations**

- BP did not conduct an effective comprehensive hazard evaluation of major accident risks for the activities of the DWH or the Macondo well
  - Major Accident Risk Assessment for Gulf of Mexico only examined its own facilities, not the ones it leased
  - BP's use of Risk Ranking Matrices in the well planning process primarily focused on financial risk (cost and schedule)



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## **BP Audits of Transocean Rigs Focused on Personal Safety & Lagging Indicators**

- BP's 2009 performance review of Transocean's rigs' safety performance, including DWH, focused on operational performance, dropped object incidents, and equipment failure
- TRIR and Serious Incident Rate were highlighted
- In its 2007 audit of the DWH, BP focused almost all of its recommendations on personal safety issues, including: waste handling, scaffolding, and appropriate tank container labeling



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## BP Safety Performance Metrics

- BP personnel performance contracts did not typically contain process safety metrics other than completion targets for OMS implementation
- Personal safety was rewarded, overshadowing focus on major accident hazards
  - BP and Transocean VIPs were on rig at time of incident to celebrate 7 years of zero lost time incidents
  - Despite having drilling expertise, the VIPs review focused attention on personal safety hazards
- Post-incident, BP developed a more rigorous process safety indicators program



## **Transocean's Safety Program Focused on Personal Safety**

- Two worker behavioral observation programs, THINK and START, were the centerpiece of activity
- These programs focused on watching and documenting how workers carry out their tasks
- Daily START card completions were a key safety performance indicator and were included as a corporate measure for rig performance



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## **Transocean Major Accident Hazard Risk Assessment (“MAHRA”)**

In 2004, Transocean’s MAHRA made 27 recommendations for safety improvements— almost all addressed personal safety issues:

- 23 pertained to improvements to warning signs, PPE, storage lockers and disposal containers
- 3 pertained to needed equipment improvements (smoke detectors and public address systems)
- 1 pertained to the need for more training
- No recommendations addressed major accident risks





## Transocean Risk Assessment of DWH

- While the scenarios of blowouts or gas in the riser were rated as high severity, they were rated as negligible to low in likelihood
- The preventions listed for blowouts and gas in the riser focused on procedures, training, instrumentation and BOP controls that largely required manual activation
- Procedures, training, and operator action are the least effective means of safety prevention in the commonly accepted hierarchy of controls





## **Transocean Key Performance Indicators: Targeting Personal Safety**

- HSE training compliance
- START card daily completion numbers
- Potential and actual severity rate of personal injuries
- TRIR
- Serious incident/injury case



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## 2010 Transocean Safety Bonuses

- Transocean reports safety performance to the public and calculates financial bonuses via two metrics:
  1. TRIR
  2. Total potential severity rate (“TPSR”)
- After 11 fatalities, the TRIR score was set to zero
- Even so, the proprietary TPSR score was so high, top-level Transocean executives were awarded bonuses
- Safety was rewarded despite the catastrophic consequences of the blowout on the DWH

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# Key Metrics Used and Promoted by Offshore Industry Associations



## American Petroleum Institute (API)

- API RP 754 is a positive step forward for establishing onshore safety performance indicators, it is not intended for use offshore
- Focus on infrequent, lagging indicators
- Need for leading indicators to proactively measure safety system performance before an incident occurs
- API SEMP RP 75 addresses offshore performance measures in an optional appendix that focus on personal safety or infrequent lagging events



## International Association of Drilling Contractors (IADC)

- Rig safety recognition program is based on personal safety statistics
- Program recognizes rigs with:
  - Zero Lost Time Incidents Rate (“LTIR”)
  - Zero TRIR
- IADC’s safety case refers to the need for “reactive” and “proactive” indicators but provides no guidance



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# Role Of The Regulator In Measuring and Driving Offshore Safety Performance



## MMS Safety Awards

- BP was a finalist for a MMS safety award at time of Macondo incident
- BP received 9 MMS awards from 1989 to 2009; Transocean received 6 awards from 1999 to 2008
- Criteria to determine SAFE award candidates primarily focused on personal safety
- Criteria did not give an accurate measure of safety management system performance to control major accident hazards





## MMS Incident Reporting and Performance Measures Program

- Pre-incident, the MMS incident reporting rule required lease holders to report incident data that were primarily personal safety-related or were lagging, infrequent indicators
- MMS also requested lease holders to report certain Outer Continental Shelf performance measures on a *voluntary* basis
- Voluntary reporting also focused on infrequent incidents and personal safety metrics



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## Losses of Well Control in the Gulf of Mexico

Type of loss of well control	2007	2008	2009	2010	2011	2012 to date
Flow underground	1	1	0	0	0	0
Flow surface	3	3	2	1	1	0
Diverter flow	0	1	0	0	0	0
Surface equipment failure	3	3	4	3	1	0
<b>Total losses of well control in Gulf of Mexico</b>	<b>7</b>	<b>8</b>	<b>6</b>	<b>4</b>	<b>2</b>	<b>0</b>

Source: BSEE Incident Reporting Statistics



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## Un-ignited Gas Releases in the Gulf of Mexico

Type of gas release	2007	2008	2009	2010	2011	2012 to date
Gas releases*	9	16	17	12	10	2
H <sub>2</sub> S releases	2	3	4	2	0	0

Source: BSEE Incident Reporting Statistics

\*Includes only un-ignited gas releases; ignited gas releases are considered fires/explosions and must be reported separately



## **BSEE OCS Performance Measures: New Reporting Requirements**

Post-incident, additional OCS performance metrics reporting became mandatory; however...

- It exemplifies reactive risk management - measures mostly lagging indicators
- Very similar to Appendix E - Performance Measures in API RP 75
- Infrequent data is not useful for identifying trends, agency priorities, or performance improvement efforts
- No new predictive, leading indicators added to collection requirements



## International Examples of Indicators Development and Reporting

- International companies and trade groups have indicator programs that recognize the value of leading indicators and using those indicators to drive continuous improvement
- Other regulatory regimes partner with trade associations to advance these programs
  - UK HSE, Oil & Gas UK, and Step Change in Safety
  - Norway PSA and industry groups



## Process Safety Indicators Currently In Use

- Availability of safety critical equipment
- Unplanned shutdowns
- Hydrocarbon releases
- Number and duration of out-of-service equipment or use of temporary equipment
- Management follow-up on safety recommendations





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## Contractor Responsibility for Reporting and Regulatory Compliance

- Policy issue of placing regulatory responsibility on offshore parties, including contractors, to ensure consistent and accurate reporting of data
- Contractor legal accountability for compliance with regulations disputed
- DOI issued citations directly to contractors for the first time post-incident
- However, new regulatory requirements still focused on the operator, not the drilling contractor



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## Conclusions

1. Since the release of the CSB's BP Texas City and Baker reports, progress has been made onshore to focus on process safety and the use of leading and lagging indicators
2. The offshore oil trade associations, companies like Transocean and BP, and the regulator, however, have not sufficiently learned nor effectively implemented these vital safety lessons from the two reports
3. Industry management, the regulator and the workforce must work together to develop more effective process safety and indicators programs for offshore energy operations

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**July 2012 Public Hearing**

# **Offshore Safety Performance Indicators Preliminary Findings on the Macondo Incident**

**July 24, 2012**

[www.csb.gov](http://www.csb.gov)

## **EXHIBIT B**



U.S. CHEMICAL SAFETY BOARD

An independent federal agency investigating chemical accidents to protect workers, the public, and the environment.

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A+

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## CSB Investigation: At the Time of 2010 Gulf Blowout, Transocean, BP, Industry Associations, and Government Offshore Regulators Had Not Effectively Learned Critical Lessons from 2005 BP Refinery Explosion in Implementing Safety Performance Indicators

July 24, 2012

Investigation Details:

[BP America Refinery Explosion](#)

### Investigators Cite Progress Overseas and in U.S. Refining and Chemical Sectors, Conclude Offshore Oil Exploration and Production Safety Will Benefit from Effective Use of Major Accident Indicators

Houston, Texas, July 24, 2012 – In preliminary findings to be released today at a [public hearing](#) in Houston, U.S. Chemical Safety Board (CSB) investigators examining the [Deepwater Horizon explosion](#) in the Gulf report that companies like Transocean and BP, trade associations, and U.S. regulators largely judged the safety of offshore facilities by focusing on personal injury and fatality data (such as dropped objects and slips, trips, and falls), that overshadowed the use of leading indicators more focused on managing the potential for catastrophic accidents.



Photo of CSB Investigators and Board Members at the CSB Public Hearing

Expanded use of process safety indicators was first recommended by the CSB in its 2007 report on the [March 2005 BP Texas City](#) refinery disaster. In the offshore arena, potential indicators – such as timely checks on safety critical equipment and response to well control events – would provide an assessment of the health of their safety management systems. These type of indicators may be precursors to the kind of tragedy that took eleven lives on the Deepwater Horizon drilling rig following the Macondo well blowout on April 20, 2010.



The preliminary findings were presented during the second day of a two-day hearing called by the CSB to examine the need for the U.S. offshore drilling and production industry – and the agencies that regulate it – to develop process safety indicators that will result in safety improvements and reduce the likelihood of major accidents.

CSB Chairperson Dr. Rafael Moure-Eraso said, “A number of past CSB investigations have found companies focusing on personal injury rates while virtually overlooking looming process safety issues – like the effectiveness of barriers against hazardous releases, automatic shutoff system failures, activation of pressure relief devices, and loss of containment of liquids and gases. Furthermore, we have found failures by companies to implement their own recommendations from previous accidents involving, for example, leaks of flammable materials.”

In its investigation of the Macondo disaster, the CSB found that BP and its contracted drilling rig operator, Transocean, were focused on personal safety issues such as worker injury rates, rather than broader safety issues involving the process of drilling for oil using a complex rig.

Noting the lack of sustained focus on process safety, CSB Investigator Cheryl MacKenzie described an “eerie resemblance” between the 2005 explosion at the BP Texas City refinery and the explosion aboard the Deepwater Horizon.

At the BP Texas City refinery on March 23, 2005, contract workers had just returned to temporary trailers at the plant after attending a celebratory lunch commending an excellent personal injury accident record. Shortly after lunch, an explosion occurred during process startup, killing 15 and injuring 180 others. At Macondo, BP and Transocean officials were in the process of lauding operators and workers for a low rate of personal injuries on the very day of that tragedy. Company VIP’s had flown to the rig in part to commend the workforce for zero lost-time incidents.

Investigator MacKenzie said, “The emphasis on personal injury and lost work-time data obscures the bigger picture: that companies need to develop indicators that give them realistic information about their potential for catastrophic accidents. How safety is measured and managed is at the very core of accident prevention. If companies are not measuring safety performance effectively and using those data to continuously improve, they will likely be left in the dark about their safety risks.”

At the public hearing the CSB investigation team presented eight conclusions from the investigation to date:

- 1. Transocean and BP had multiple safety management system deficiencies that contributed to the Macondo incident.

- 2. Before the Macondo blowout, the safety approaches and metrics used by the two companies and U.S. trade associations did not adequately focus on major accident hazards. Recently BP officials informed CSB investigators that they are working to develop a more comprehensive offshore indicators program using leading and lagging metrics to help drive performance improvements.

- 3. Systems used for measuring safety effectiveness in the offshore industry focused on personal safety and



infrequent lagging indicators.

- . The U.S. offshore regulator, the Department of the Interior, can achieve a greater impact on major accident prevention through the development of a leading and lagging process safety indicator program.
- . Despite some significant progress with process safety indicator implementation in the downstream oil industry, in the offshore sector BP, Transocean, industry associations, and the regulator had not effectively learned critical lessons of Texas City and other serious process incidents at the time of the Macondo blowout.
- . Companies and trade associations operating in other regulatory regimes outside the U.S. have developed effective indicator programs, recognizing the value of leading indicators, and using those indicators to drive continuous improvement.
- . Trade associations and many of the same companies that operate in the U.S. are partnering with the regulators in other countries in advancing safety indicators programs.
- . In the aftermath of the Macondo blowout, companies and trade associations in the U.S. are initiating efforts to advance the development of offshore major accident indicators.

The CSB investigative team further presented a number of preliminary findings of management system deficiencies underlying the Macondo blowout and explosion. The existence of these deficiencies – at the same time that the relevant companies and the regulator focused on personal safety metrics – underscore the need for more effective process safety indicators, investigators said. These system deficiencies included:

- . BP and Transocean hazard assessment systems were inadequate. For example, the bridging document that sought to harmonize safety controls between BP and Transocean was a minimal document that focused only on six personal safety issues such as minimum heights for employing fall protection equipment. The document did not address major accident hazards like the potential for loss of well control.
- . Hazard assessments of major accident risks on the Deepwater Horizon relied heavily on prompt, correct manual intervention by the rig crew to prevent a catastrophe, for example to divert the flow of flammable hydrocarbons away from the rig during a blowout. Depending on a human reaction alone during an emergency situation – with many distractions – is not a reliable safety layer. A comprehensive hazard assessment should have identified this risk.
- . There were no written procedures for how to conduct the key “negative pressure test” which was conducted on the day of the incident and was necessary to confirm the integrity of the cement seal on the well. There were also no written criteria or safe limits defined for determining if the test was a success.
- . Systems for managing the safety of process changes were inadequate. The plan to complete and “temporarily abandon” the Macondo drilling operation was changed five times during the week before the disaster, but there is no available documentation that management of change procedures or formal hazard assessments were conducted.
- . Systems for investigating safety incidents and implementing and disseminating the findings were inadequate. Prior to the Macondo disaster in December 2009, Transocean operated the Sedco 711

drilling rig in the North Sea (BP was not involved). In an incident similar to Macondo, the Transocean crew had a delayed response to indications that hydrocarbons were flowing into the well. Mud and hydrocarbons eventually reached the rig floor at the sea surface, though they did not ignite in this case and the blowout preventer sealed the well. Transocean prepared an "Operations Advisory" discussing the lessons from the Sedco 711 incident, but it was not effectively communicated to employees beyond the North Sea.

On the Deepwater Horizon, a little over a month before the Macondo blowout, there was a delay by operators in responding to a "well kick" – an unanticipated, hazardous influx of hydrocarbons into the wellbore that can precede a blowout. BP investigated the incident but after informal verbal discussions with Transocean, evidence indicates that Transocean did not implement changes based on the findings.

A robust system of process safety indicators might have revealed many of these management system deficiencies before the disaster occurred, CSB investigators said. CSB Team Lead Cheryl MacKenzie noted that Transocean primarily measured safety performance through two metrics: total recordable injuries and the "Total Potential Severity Rate." Although Transocean gave itself a zero score for total recordable injuries following the tragedy, its scoring on the potential severity rate enabled top-level management at Transocean to receive financial bonuses for safety performance. The focus on personal safety was reflected in a 2004 Transocean major accident hazard risk assessment of the Deepwater Horizon. The assessment made 27 recommendations for safety improvements – but almost all addressed personal safety issues and no recommendations addressed major accident risks such as gas entering the riser or well blowouts.

The CSB investigation is also looking at the role U.S. regulators and regulations played in the time preceding to the accident. The CSB found that BP was a finalist for a safety award from the Minerals Management Service (MMS), the former Department of the Interior agency overseeing offshore oil exploration and production, and that a total of 15 safety awards had been given to BP and Transocean over a period of years. The criteria used to determine the award candidates, CSB investigators said, focused on personal safety metrics and did not give an accurate measure of safety management system performance to control major accident hazards.

Following the Macondo blowout, a reorganization within the Interior Department created the Bureau of Safety and Environmental Enforcement (BSEE). Preliminary CSB findings indicate that some reporting requirements have become mandatory, but the focus remains on reporting major accident events such as fires rather than predictive, leading indicators.

The onshore refining industry, responding to a previous CSB recommendation to the American Petroleum Institute (API) and the United Steelworkers Union, is moving toward the development of key safety performance indicators, the CSB noted.

CSB Chairman Moure-Eraso said, "API has taken a positive step forward in establishing 'Recommend Practice 754' on safety performance indicators but I believe that input from all stakeholders is necessary to develop a more robust Recommended Practice. We would like to see API move even further and focus more on leading indicators to proactively measure safety system performance before accidents occur. I believe the offshore drilling industry could benefit from such a program as well. Meantime, it is encouraging to see the industry move in this important direction, which will help prevent accidents and save lives."

The CSB is an independent federal agency charged with investigating serious chemical

accidents. The agency's board members are appointed by the president and confirmed by the Senate. CSB investigations look into all aspects of chemical accidents, including physical causes such as equipment failure as well as inadequacies in regulations, industry standards, and safety management systems.

The Board does not issue citations or fines but does make safety recommendations to plants, industry organizations, labor groups, and regulatory agencies such as OSHA and EPA. Visit our website, [www.csb.gov](http://www.csb.gov). For more information, contact Communications Director Hillary Cohen (202) 446-8094 cell or Sandy Gilmour at (202) (202) 251-5496 cell.